

Wafer Integrated Rigid Support Ring

Abstract

5 A shadow mask for depositing solder bumps includes additional dummy holes
located adjacent holes corresponding to most of the perimeter chips of the wafer. The
additional dummy provide more uniform plasma etching of contacts of the wafer,
improve etching of contacts of perimeter chips, and lower contact resistance of contacts
of perimeter chips. The extra holes also provide solder bumps outside the perimeter chips
that can be used to support a second shadow mask for deposition of an additional
material, such as tin, on the reflowed solder bumps for mounting the chips on a plastic
10 substrate at low temperature. An improved mask to wafer alignment aid is formed from
standard solder bumps. The improved alignment aid avoids damage to test probes and
provides improved course alignment.